

Amendments to the Claims:

- 1 1. (Original) A method for improving performance of an engine comprising:
2 contacting contaminated liquid hydrocarbon fuel comprising an initial concentration
3 of drag reducer additive ("DRA") with one or more effective DRA removal
4 agent(s) under conditions effective to produce decontaminated liquid
5 hydrocarbon fuel comprising a reduced concentration of said DRA; and,
6 feeding said decontaminated liquid hydrocarbon fuel to said engine.
- 1 2. (Original) The method of claim 1 wherein said one or more effective DRA
2 removal agents achieve a % DRA removal of about 10% or more when 1 g of the DRA
3 removal agent is added in increments with agitation to 100 ml. of contaminated liquid
4 hydrocarbon fuel comprising from about 8 to about 12 ppm of unsheared target DRA.
- 1 3. (Original) The method of claim 2 wherein said % DRA removal is about 20%
2 or more.
- 1 4. (Original) The method of claim 2 wherein said % DRA removal is about 30%
2 or more.
- 1 5. (Original) The method of claim 2 wherein said % DRA removal is about 40%
2 or more.
- 1 6. (Original) A method for improving performance of an engine comprising:
2 contacting contaminated liquid hydrocarbon fuel comprising an initial concentration
3 of drag reducer additive with one or more effective DRA removal agent(s)
4 selected from the group consisting of graphites, activated carbons, fresh
5 attapulugus clay, and combinations thereof, under conditions effective to

6 produce decontaminated liquid hydrocarbon fuel comprising a reduced
7 concentration of said DRA; and,
8 feeding said decontaminated liquid hydrocarbon fuel to said engine.

1 7. (Original) The method of claim 6 wherein said one or more DRA removal
2 agents have an adsorption capacity of about 0.03 wt.% or more.

1 8. (Original) The method of claim 6 wherein said conditions comprise
2 incremental addition of the DRA removal agent(s) and agitation of the resulting mixture.

1 9. (Original) The method of claim 6 wherein said conditions comprise
2 passing the contaminated liquid hydrocarbon fuel through a bed comprising said one or
3 more effective DRA removal agent(s).

1 10. (Original) The method of claim 9 wherein said contacting produces used
2 DRA removal agent(s), said method further comprising replacing said used DRA removal
3 agent(s) with fresh DRA removal agent(s).

1 11. (Original) The method of claim 6 wherein said contacting said contaminated
2 liquid hydrocarbon fuel comprising an initial concentration of DRA with one or more
3 effective DRA removal agent(s) occurs at a location selected from the group consisting of:
4 at a refinery; between a refinery and a fuel terminal; at a fuel terminal; between two different
5 fuel terminals; between a fuel terminal and an airport storage tank; at an airport storage tank;
6 between a fuel terminal and a tanker truck; at a tanker truck; between an airport storage tank
7 and a tanker truck; between two different tanker trucks; between a tanker truck and an
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8 engine, at a fuel dispenser; between a fuel dispenser and a vehicle comprising the engine;
9 and, at the engine.

1 12. (Original) The method of claim 6 further comprising preheating said one or
2 more removal agents prior to use under conditions effective to remove adsorbed water
3 without damaging the removal agent(s).

1 13. (Currently amended) The method of claim 6 wherein said reduced
2 concentration of DRA is sufficiently low to perform one or more function selected from the
3 group consisting of permitting reignition of jet fuel after flameout, decreasing plugging of
4 fuel filters, and reducing formation of deposits on engine components ~~selected from the~~
5 ~~group consisting of intake valves, combustion chambers, and fuel injectors.~~

1 14. (Original) The method of claim 6 wherein said liquid hydrocarbon fuel has a
2 boiling range of from about 150 °F to about 750 °F.

1 15. (Original) The method of claim 6 wherein said liquid hydrocarbon fuel is
2 selected from the group consisting of liquefied natural gas (LNG), liquefied petroleum gas
3 (LPG), motor gasoline, aviation gasoline, distillate fuels such as diesel fuel and home heating
4 oil, kerosene, jet fuel, No. 2 oil, residual fuel, No. 6 fuel, or bunker fuel.

1 16. (Original) The method of claim 6 wherein said liquid hydrocarbon fuel is
2 selected from the group consisting of diesel fuel, jet fuel, aviation gasoline, and motor
3 gasoline.

1 17. (Original) The method of claim 6 wherein said liquid hydrocarbon fuel is jet
2 fuel.

1 18. (Original) The method of claim 17 wherein said reduced concentration of

2 DRA is sufficiently low to permit reignition of jet fuel after flameout.

1 19. (Original) The method of claim 6 wherein said drag reducer additive
2 comprises a polyalphaolefin having a peak molecular weight of about 1 million Daltons
3 or more.

1 20. (Original) The method of claim 18 wherein said polyalphaolefin has a
2 peak molecular weight of about 10 million Daltons or more.

1 21. (Original) The method of claim 6 wherein said DRA comprises two
2 different linear alpha olefins (LAO's) or more having from about 6 to about 12 carbon
3 atoms, the number of carbon atoms of the at least two different LAO's differing by 6.

1 22. (Original) The method of claim 6 wherein said DRA comprises one or
2 more polyalphaolefins made by solution polymerization.

1 23. (Original) The method of claim 6 wherein said DRA comprises polar
2 groups.

1 24. (Original) The method of claim 23 wherein said DRA comprises organic
2 polar groups.

1 25. (Original) The method of claim 23 wherein said polar groups comprise a
2 moiety selected from the group consisting of oxygen, sulfur, nitrogen, halogen,
3 phosphorus, unsaturated carbon-carbon bonds, and combinations thereof.

1 26. (Original) The method of claim 24 wherein said organic polar groups
2 comprise a moiety selected from the group consisting of oxygen, sulfur, nitrogen,
3 halogen, phosphorus, unsaturated carbon-carbon bonds, and combinations thereof.

1 27. (Original) A method for improving performance of an engine comprising:

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2 contacting contaminated liquid hydrocarbon fuel comprising an initial concentration
3 of drag reducer additive ("DRA") with one or more effective DRA removal
4 agent comprising graphite under conditions effective to produce
5 decontaminated liquid hydrocarbon fuel comprising a reduced concentration
6 of said DRA; and,

7 feeding said decontaminated liquid hydrocarbon fuel to said engine.

1 28. (Original) The method of claim 27 wherein said graphite is selected from the
2 group consisting of graphite powders and graphite particulates having an adsorption capacity
3 of about 0.01 wt.% or more.

1 29. (Currently amended) The method of claim 27 wherein said graphite comprises
2 granules having an average diameter of from about 0.01 microns to about 10,000 microns.

1 30. (Currently amended) The method of claim 28 wherein said graphite comprises
2 granules having an average diameter of from about 0.01 microns to about 10,000 microns.

1 31. (Currently amended) The method of claim 27 wherein said graphite comprises
2 granules having an average diameter of from about 0.1 microns to about 1,000 microns.

1 32. (Currently amended) The method of claim 28 wherein said graphite comprises
2 granules having an average diameter of from about 0.1 microns to about 1,000 microns.

1 33. (Currently amended) The method of claim 27 wherein said graphite comprises
2 granules having an average diameter of from about 1 micron to about 100 microns.

1 34. (Currently amended) The method of claim 28 wherein said graphite comprises
2 granules having an average diameter of from about 1 micron to about 100 microns.

1 35. (Original) The method of claim 27 wherein said graphite is selected from the
2 group consisting of graphite powders and graphite particulates having an adsorption capacity
3 of about 0.03 wt.% or more.

1 36. (Original) The method of claim 29 wherein said adsorption capacity is about
2 0.03 wt.% or more.

1 37. (Original) The method of claim 32 wherein said adsorption capacity is about
2 0.03 wt.% or more.

1 38. (Original) The method of claim 34 wherein said adsorption capacity is about
2 0.03 wt.% or more.

1 39. (Original) The method of claim 9 wherein said adsorption capacity is about
2 0.04 wt% or more.

1 40. (Original) The method of claim 27 wherein said adsorption capacity is about
2 0.04 wt%.

1 41. (Original) The method of claim 27 wherein said graphite is selected from the
2 group consisting of natural graphites, synthetic graphites, expanded graphites, and
3 combinations thereof.

1 42. (Original) The method of claim 41 wherein said graphite is selected from the
2 group consisting of purified carbon, natural graphite, silica (crystalline quartz), synthetic
3 graphite, and combinations thereof.

1 43. (Original) The method of claim 35 wherein said graphite is selected from the
2 group consisting of purified carbon, natural graphite, silica (crystalline quartz), synthetic
3 graphite, and combinations thereof.

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1 44. (Original) The method of claim 28 wherein said conditions comprise
2 incremental addition of the DRA removal agent(s) and agitation of the resulting mixture.

1 45. (Original) The method of claim 28 wherein said conditions comprise
2 passing the contaminated liquid hydrocarbon fuel through a bed comprising said one or
3 more effective DRA removal agent(s).

1 46. (Original) The method of claim 45 wherein said contacting produces used
2 DRA removal agent(s), said method further comprising replacing said used DRA removal
3 agent(s) with fresh DRA removal agent(s).

1 47. (Original) The method of claim 28 wherein said contacting said contaminated
2 liquid hydrocarbon fuel comprising an initial concentration of DRA with one or more
3 effective DRA removal agent(s) occurs at a location selected from the group consisting of:
4 at a refinery; between a refinery and a fuel terminal; at a fuel terminal; between two different
5 fuel terminals; between a fuel terminal and an airport storage tank; at an airport storage tank;
6 between a fuel terminal and a tanker truck; at a tanker truck; between an airport storage tank
7 and a tanker truck; between two different tanker trucks; between a tanker truck and an
8 engine, at a fuel dispenser; between a fuel dispenser and a vehicle comprising the engine;
9 and, at the engine.

1 48. (Original) The method of claim 28 further comprising preheating said one or
2 more removal agents prior to use under conditions effective to remove adsorbed water
3 without damaging the removal agent(s).

1 49. (Currently amended) The method of claim 28 wherein said reduced
2 concentration of DRA is sufficiently low to perform one or more function selected from the
3 group consisting of permitting reignition of jet fuel after flameout, decreasing plugging of
4 fuel filters, and reducing formation of deposits on engine components ~~selected from the~~
5 ~~group consisting of intake valves, combustion chambers, and fuel injectors.~~

1 50. (Original) The method of claim 28 wherein said liquid hydrocarbon fuel has a
2 boiling range of from about 150 °F to about 750 °F.

1 51. (Original) The method of claim 28 wherein said liquid hydrocarbon fuel is
2 selected from the group consisting of liquefied natural gas (LNG), liquefied petroleum gas
3 (LPG), motor gasoline, aviation gasoline, distillate fuels such as diesel fuel and home heating
4 oil, kerosene, jet fuel, No. 2 oil, residual fuel, No. 6 fuel, or bunker fuel.

1 52. (Original) The method of claim 28 wherein said liquid hydrocarbon fuel is
2 selected from the group consisting of diesel fuel, jet fuel, aviation gasoline, and motor
3 gasoline.

1 53. (Original) The method of claim 28 wherein said liquid hydrocarbon fuel is jet
2 fuel.

1 54. (Original) The method of claim 53 wherein said reduced concentration of
2 DRA is sufficiently low to permit reignition of jet fuel after flameout.

1 55. (Original) The method of claim 28 wherein said drag reducer additive
2 comprises a polyalphaolefin having a peak molecular weight of about 1 million Daltons
3 or more.

1 56. (Original) The method of claim 54 wherein said polyalphaolefin has a

2 peak molecular weight of about 10 million Daltons or more.

1 57. (Original) The method of claim 28 wherein said DRA comprises two
2 different linear alpha olefins (LAO's) or more having from about 6 to about 12 carbon
3 atoms, the number of carbon atoms of the at least two different LAO's differing by 6.

1 58. (Original) The method of claim 28 wherein said DRA comprises one or
2 more polyalphaolefins made by solution polymerization.

1 59. (Original) The method of claim 28 wherein said DRA comprises polar
2 groups.

1 60. (Original) The method of claim 59 wherein said DRA comprises organic
2 polar groups.

1 61. (Original) The method of claim 59 wherein said polar groups comprise a
2 moiety selected from the group consisting of oxygen, sulfur, nitrogen, halogen,
3 phosphorus, unsaturated carbon-carbon bonds, and combinations thereof.

1 62. (Original) The method of claim 60 wherein said organic polar groups
2 comprise a moiety selected from the group consisting of oxygen, sulfur, nitrogen, halogen,
3 phosphorus, unsaturated carbon-carbon bonds, and combinations thereof.

1 63. (Original) A method for improving performance of an engine comprising:
2 contacting contaminated liquid hydrocarbon fuel comprising an initial concentration
3 of drag reducer additive ("DRA") with one or more effective DRA removal
4 agent(s) comprising activated carbon under conditions effective to produce
5 decontaminated liquid hydrocarbon fuel comprising a reduced concentration
6 of said DRA; and,

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7 feeding said decontaminated liquid hydrocarbon fuel to said engine.

1 64. (Original) The method of claim 63 wherein said activated carbon has an
2 adsorption capacity of about 0.01 wt.% or more.

1 65. (Original) The method of claim 63 wherein said activated carbon has an
2 adsorption capacity of about 0.02 wt.% or more.

1 66. (Original) The method of claim 63 wherein said activated carbon has an
2 adsorption capacity of about 0.03 wt.% or more.

1 67. (Original) The method of claim 64 wherein said conditions comprise
2 incremental addition of the DRA removal agent(s) and agitation of the resulting mixture.

1 68. (Original) The method of claim 64 wherein said conditions comprise
2 passing the contaminated liquid hydrocarbon fuel through a bed comprising said one or
3 more effective DRA removal agent(s).

1 69. (Original) The method of claim 68 wherein said contacting produces used
2 DRA removal agent(s), said method further comprising replacing said used DRA removal
3 agent(s) with fresh DRA removal agent(s).

1 70. (Original) The method of claim 64 wherein said contacting said contaminated
2 liquid hydrocarbon fuel comprising an initial concentration of DRA with one or more
3 effective DRA removal agent(s) occurs at a location selected from the group consisting of:
4 at a refinery; between a refinery and a fuel terminal; at a fuel terminal; between two different
5 fuel terminals; between a fuel terminal and an airport storage tank; at an airport storage tank;
6 between a fuel terminal and a tanker truck; at a tanker truck; between an airport storage tank
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7 and a tanker truck; between two different tanker trucks; between a tanker truck and an
8 engine, at a fuel dispenser; between a fuel dispenser and a vehicle comprising the engine;
9 and, at the engine.

1 71. (Original) The method of claim 64 further comprising preheating said one or
2 more removal agents prior to use under conditions effective to remove adsorbed water
3 without damaging the removal agent(s).

1 72. (Currently amended) The method of claim 64 wherein said reduced
2 concentration of DRA is sufficiently low to perform one or more function selected from the
3 group consisting of permitting reignition of jet fuel after flameout, decreasing plugging of
4 fuel filters, and reducing formation of deposits on engine components ~~selected from the~~
5 ~~group consisting of intake valves, combustion chambers, and fuel injectors.~~

1 73. (Original) The method of claim 64 wherein said liquid hydrocarbon fuel has a
2 boiling range of from about 150 °F to about 750 °F.

1 74. (Original) The method of claim 64 wherein said liquid hydrocarbon fuel is
2 selected from the group consisting of liquefied natural gas (LNG), liquefied petroleum gas
3 (LPG), motor gasoline, aviation gasoline, distillate fuels such as diesel fuel and home heating
4 oil, kerosene, jet fuel, No. 2 oil, residual fuel, No. 6 fuel, or bunker fuel.

1 75. (Original) The method of claim 64 wherein said liquid hydrocarbon fuel is
2 selected from the group consisting of diesel fuel, jet fuel, aviation gasoline, and motor
3 gasoline.

1 76. (Original) The method of claim 64 wherein said liquid hydrocarbon fuel is jet
2 fuel.

1 77. (Original) The method of claim 76 wherein said reduced concentration of
2 DRA is sufficiently low to permit reignition of jet fuel after flameout.

1 78. (Original) The method of claim 64 wherein said drag reducer additive
2 comprises a polyalphaolefin having a peak molecular weight of about 1 million Daltons
3 or more.

1 79. (Original) The method of claim 77 wherein said polyalphaolefin has a
2 peak molecular weight of about 10 million Daltons or more.

1 80. (Original) The method of claim 64 wherein said DRA comprises two
2 different linear alpha olefins (LAO's) or more having from about 6 to about 12 carbon
3 atoms, the number of carbon atoms of the at least two different LAO's differing by 6.

1 81. (Original) The method of claim 64 wherein said DRA comprises one or
2 more polyalphaolefins made by solution polymerization.

1 82. (Original) The method of claim 64 wherein said DRA comprises polar
2 groups.

1 83. (Original) The method of claim 82 wherein said DRA comprises organic
2 polar groups.

1 84. (Original) The method of claim 82 wherein said polar groups comprise a
2 moiety selected from the group consisting of oxygen, sulfur, nitrogen, halogen,
3 phosphorus, unsaturated carbon-carbon bonds, and combinations thereof.

1 85. (Original) The method of claim 83 wherein said organic polar groups
2 comprise a moiety selected from the group consisting of oxygen, sulfur, nitrogen, halogen,
3 phosphorus, unsaturated carbon-carbon bonds, and combinations thereof.

1 86. (Original) A method for improving performance of an engine comprising:
2 contacting contaminated liquid hydrocarbon fuel comprising an initial concentration
3 of DRA with fresh attapulgis clay under conditions effective to produce
4 decontaminated liquid hydrocarbon fuel comprising a reduced concentration
5 of said DRA; and,
6 feeding said decontaminated liquid hydrocarbon fuel to said engine.

1 87. (Original) The method of claim 86 wherein said fresh attapulgis clay is
2 effective to remove about 10% or more of said DRA when 1 g of the fresh attapulgis clay is
3 added in increments of from about 0.02 gram to about 0.1 gram, with agitation, to 100 ml. of
4 contaminated liquid hydrocarbon fuel comprising from about 8 to about 12 ppm of the
5 unsheared DRA.

1 88. (Original) The method of claim 87 wherein said fresh attapulgis clay
2 comprises granules, a majority of said granules having a mesh size of from about 30 to about
3 90.

1 89. (Original) The method of claim 87 wherein said conditions comprise
2 incremental addition of the DRA removal agent(s) and agitation of the resulting mixture.

1 90. (Original) The method of claim 87 wherein said conditions comprise
2 passing the contaminated liquid hydrocarbon fuel through a bed comprising said one or
3 more effective DRA removal agent(s).

1 91. (Original) The method of claim 90 wherein said contacting produces used
2 DRA removal agent(s), said method further comprising replacing said used DRA removal
3

3 agent(s) with fresh DRA removal agents.

1 92. (Original) The method of claim 87 wherein said contacting said contaminated
2 liquid hydrocarbon fuel comprising an initial concentration of DRA with one or more
3 effective DRA removal agent(s) occurs at a location selected from the group consisting of:
4 at a refinery; between a refinery and a fuel terminal; at a fuel terminal; between two different
5 fuel terminals; between a fuel terminal and an airport storage tank; at an airport storage tank;
6 between a fuel terminal and a tanker truck; at a tanker truck; between an airport storage tank
7 and a tanker truck; between two different tanker trucks; between a tanker truck and an
8 engine, at a fuel dispenser; between a fuel dispenser and a vehicle comprising the engine;
9 and, at the engine.

1 93. (Original) The method of claim 87 further comprising preheating said one or
2 more removal agents prior to use under conditions effective to remove adsorbed water
3 without damaging the removal agent(s).

1 94. (Currently amended) The method of claim 87 wherein said reduced
2 concentration of DRA is sufficiently low to perform one or more function selected from the
3 group consisting of permitting reignition of jet fuel after flameout, decreasing plugging of
4 fuel filters, and reducing formation of deposits on engine components selected from the
5 group consisting of intake valves, combustion chambers, and fuel injectors.

1 95. (Original) The method of claim 87 wherein said liquid hydrocarbon fuel has a
2 boiling range of from about 150 °F to about 750 °F.

1 96. (Original) The method of claim 87 wherein said liquid hydrocarbon fuel is
2 selected from the group consisting of liquefied natural gas (LNG), liquefied petroleum gas

3 (LPG), motor gasoline, aviation gasoline, distillate fuels such as diesel fuel and home heating
4 oil, kerosene, jet fuel, No. 2 oil, residual fuel, No. 6 fuel, or bunker fuel.

1 97. (Original) The method of claim 87 wherein said liquid hydrocarbon fuel is
2 selected from the group consisting of diesel fuel, jet fuel, aviation gasoline, and motor
3 gasoline.

1 98. (Original) The method of claim 87 wherein said liquid hydrocarbon fuel is jet
2 fuel.

1 99. (Original) The method of claim 98 wherein said reduced concentration of
2 DRA is sufficiently low to permit reignition of jet fuel after flameout.

1 100. (Original) The method of claim 87 wherein said drag reducer additive
2 comprises a polyalphaolefin having a peak molecular weight of about 1 million Daltons
3 or more.

1 101. (Original) The method of claim 99 wherein said polyalphaolefin has a
2 peak molecular weight of about 10 million Daltons or more.

1 102. (Original) The method of claim 87 wherein said DRA comprises two
2 different linear alpha olefins (LAO's) or more having from about 6 to about 12 carbon
3 atoms, the number of carbon atoms of the at least two different LAO's differing by 6.

1 103. (Original) The method of claim 87 wherein said DRA comprises one or
2 more polyalphaolefins made by solution polymerization.

1 104. (Original) The method of claim 87 wherein said DRA comprises polar
2 groups.

1 105. (Original) The method of claim 104 wherein said DRA comprises organic

2 polar groups.

1 106. (Original) The method of claim 104 wherein said polar groups comprise a
2 moiety selected from the group consisting of oxygen, sulfur, nitrogen, halogen,
3 phosphorus, unsaturated carbon-carbon bonds, and combinations thereof.

1 107. (Original) The method of claim 104 wherein said organic polar groups
2 comprise a moiety selected from the group consisting of oxygen, sulfur, nitrogen,
3 halogen, phosphorus, unsaturated carbon-carbon bonds, and combinations thereof.

1 108. (New) A method for reigniting jet fuel previously contaminated with DRA
2 after flameout comprising:

3 feeding to a jet engine decontaminated jet fuel comprising a reduced concentration of
4 DRA, said reduced concentration of DRA being produced by contacting
5 contaminated jet fuel comprising an initial concentration of DRA with one or
6 more effective DRA removal agent(s) under conditions effective to produce
7 said decontaminated jet fuel; and,

8 feeding said decontaminated jet fuel to a jet engine, said reduced concentration of
9 DRA being sufficiently low to permit reignition of jet fuel after flameout.

1 109. (New) The method of claim 108 wherein said one or more effective DRA
2 removal agents achieve a % DRA removal of about 10% or more when 1 g of the DRA
3 removal agent is added in increments with agitation to 100 ml. of contaminated jet fuel
4 comprising from about 8 to about 12 ppm of unsheared target DRA.

1 110. (New) The method of claim 109 wherein said % DRA removal is about 20%
2 or more.

1 111. (New) The method of claim 109 wherein said % DRA removal is about 30%
2 or more.

1 112. (New) The method of claim 109 wherein said % DRA removal is about 40%
2 or more.

1 113. (New) The method of claim 108 wherein said one or more effective DRA
2 removal agent(s) are selected from the group consisting of graphites, activated carbons, fresh
3 attapulugus clay, and combinations thereof.

1 114. (New) The method of claim 113 wherein said one or more DRA removal
2 agents have an adsorption capacity of about 0.03 wt.% or more.

1 115. (New) The method of claim 113 wherein said conditions comprise
2 incremental addition of the DRA removal agent(s) and agitation of the resulting mixture.

1 116 (New) The method of claim 113 wherein said conditions comprise
2 passing the contaminated jet fuel through a bed comprising said one or more effective
3 DRA removal agent(s).

1 117. (New) The method of claim 116 wherein said contacting produces used
2 DRA removal agent(s), said method further comprising replacing said used DRA removal
3 agent(s) with fresh DRA removal agent(s).

1 118. (New) The method of claim 113 wherein said contacting said contaminated
2 jet fuel comprising an initial concentration of DRA with one or more effective DRA removal
3 agent(s) occurs at a location selected from the group consisting of: at a refinery; between a
4 refinery and a fuel terminal; at a fuel terminal; between two different fuel terminals; between
5 a fuel terminal and an airport storage tank; at an airport storage tank; between a fuel terminal

6 and a tanker truck; at a tanker truck; between an airport storage tank and a tanker truck;
7 between two different tanker trucks; between a tanker truck and an engine, at a fuel
8 dispenser; between a fuel dispenser and a jet; at the jet engine .

1 119. (New) The method of claim 113 further comprising preheating said one or
2 more removal agents prior to use under conditions effective to remove adsorbed water
3 without damaging the removal agent(s).

1 120. (New) The method of claim 113 wherein said drag reducer additive
2 comprises a polyalphaolefin having a peak molecular weight of about 1 million Daltons
3 or more.

1 121. (New) The method of claim 113 wherein said polyalphaolefin has a peak
2 molecular weight of about 10 million Daltons or more.

1 122. (New) The method of claim 113 wherein said DRA comprises two
2 different linear alpha olefins (LAO's) or more having from about 6 to about 12 carbon
3 atoms, the number of carbon atoms of the at least two different LAO's differing by 6.

1 123. (New) The method of claim 113 wherein said DRA comprises one or more
2 polyalphaolefins made by solution polymerization.

1 124. (New) The method of claim 113 wherein said DRA comprises polar
2 groups.

1 125. (New) The method of claim 124 wherein said DRA comprises organic
2 polar groups.

1 126. (New) The method of claim 124 wherein said polar groups comprise a
2 moiety selected from the group consisting of oxygen, sulfur, nitrogen, halogen,

3 phosphorus, unsaturated carbon-carbon bonds, and combinations thereof.

1 127. (New) The method of claim 125 wherein said organic polar groups
2 comprise a moiety selected from the group consisting of oxygen, sulfur, nitrogen,
3 halogen, phosphorus, unsaturated carbon-carbon bonds, and combinations thereof.

1 128. (New) The method of claim 108 wherein said one or more effective DRA
2 removal agent(s) comprise graphite.

1 129. (New) The method of claim 128 wherein said graphite achieves a % DRA
2 removal of about 10% or more when 1 g of graphite is added in increments with agitation to
3 100 ml. of contaminated jet fuel comprising from about 8 to about 12 ppm of unsheared
4 target DRA.

1 130. (New) The method of claim 128 wherein said % DRA removal is about 20%
2 or more.

1 131. (New) The method of claim 128 wherein said % DRA removal is about 30%
2 or more.

1 132. (New) The method of claim 128 wherein said % DRA removal is about 40%
2 or more.

1 133. (New) The method of claim 128 wherein said graphite is selected from the
2 group consisting of graphite powders and graphite particulates having an adsorption capacity
3 of about 0.01 wt.% or more.

1 134. (New) The method of claim 128 wherein said graphite comprises granules.

1 135. (New) The method of claim 128 wherein said graphite comprises granules
2 having an average diameter of from about 0.1 microns to about 1,000 microns.

1 136. (New) The method of claim 128 wherein said graphite comprises granules.

1 137. (New) The method of claim 128 wherein said graphite is selected from the
2 group consisting of graphite powders and graphite particulates having an adsorption capacity
3 of about 0.03 wt.% or more.

1 138. (New) The method of claim 128 wherein said conditions comprise
2 incremental addition of the DRA removal agent(s) and agitation of the resulting mixture.

1 139. (New) The method of claim 128 wherein said conditions comprise passing
2 the contaminated jet fuel through a bed comprising said one or more effective DRA
3 removal agent(s).

1 140. (New) The method of claim 139 wherein said contacting produces used
2 DRA removal agent(s), said method further comprising replacing said used DRA removal
3 agent(s) with fresh DRA removal agent(s).

1 141. (New) The method of claim 128 further comprising preheating said one or
2 more removal agents prior to use under conditions effective to remove adsorbed water
3 without damaging the removal agent(s).

1 142. (New) The method of claim 128 wherein said drag reducer additive
2 comprises a polyalphaolefin having a peak molecular weight of about 1 million Daltons
3 or more.

1 143. (New) The method of claim 128 wherein said polyalphaolefin has a peak
2 molecular weight of about 10 million Daltons or more.

1 144. (New) The method of claim 128 wherein said DRA comprises two
2 different linear alpha olefins (LAO's) or more having from about 6 to about 12 carbon

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3 atoms, the number of carbon atoms of the at least two different LAO's differing by 6.

1 145. (New) The method of claim 128 wherein said DRA comprises one or more
2 polyalphaolefins made by solution polymerization.

1 146. (New) The method of claim 128 wherein said DRA comprises polar
2 groups.

1 147. (New) The method of claim 128 wherein said DRA comprises organic
2 polar groups.

1 148. (New) The method of claim 146 wherein said polar groups comprise a
2 moiety selected from the group consisting of oxygen, sulfur, nitrogen, halogen,
3 phosphorus, unsaturated carbon-carbon bonds, and combinations thereof.

1 149. (New) The method of claim 108 wherein said one or more effective DRA
2 removal agent comprises activated carbon.

1 150. (New) The method of claim 149 wherein said conditions comprise
2 incremental addition of the DRA removal agent(s) and agitation of the resulting mixture.

1 151. (New) The method of claim 149 wherein said conditions comprise passing
2 the contaminated liquid hydrocarbon fuel through a bed comprising said one or more
3 effective DRA removal agent(s).

1 152. (New) The method of claim 149 wherein said contacting produces used
2 DRA removal agent(s), said method further comprising replacing said used DRA removal
3 agent(s) with fresh DRA removal agent(s).

1 153. (New) The method of claim 149 further comprising preheating said one or
2 more removal agents prior to use under conditions effective to remove adsorbed water
3 without damaging the removal agent(s).

1 154. (New) The method of claim 149 wherein said drag reducer additive
2 comprises a polyalphaolefin having a peak molecular weight of about 1 million Daltons
3 or more.

1 155. (New) The method of claim 149 wherein said polyalphaolefin has a peak
2 molecular weight of about 10 million Daltons or more.

1 156. (New) The method of claim 149 wherein said DRA comprises two
2 different linear alpha olefins (LAO's) or more having from about 6 to about 12 carbon
3 atoms, the number of carbon atoms of the at least two different LAO's differing by 6.

1 157. (New) The method of claim 149 wherein said DRA comprises one or more
2 polyalphaolefins made by solution polymerization.

1 158. (New) The method of claim 149 wherein said DRA comprises polar
2 groups.

1 159. (New) The method of claim 149 wherein said DRA comprises organic
2 polar groups.

1 160. (New) The method of claim 149 wherein said polar groups comprise a
2 moiety selected from the group consisting of oxygen, sulfur, nitrogen, halogen,
3 phosphorus, unsaturated carbon-carbon bonds, and combinations thereof.

1 161. (New) The method of claim 149 wherein said activated carbon has an
2 adsorption capacity of about 0.01 wt.% or more.

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1 162. (New) The method of claim 149 wherein said activated carbon has an
2 adsorption capacity of about 0.02 wt.% or more.

1 163. (New) The method of claim 149 wherein said activated carbon has an
2 adsorption capacity of about 0.03 wt.% or more.

1 164. (New) The method of claim 149 wherein said activated carbon achieves a %
2 DRA removal of about 10% or more when 1 g of activated carbon is added in increments
3 with agitation to 100 ml. of contaminated jet fuel comprising from about 8 to about 12 ppm
4 of unsheared target DRA.

1 165. (New) The method of claim 149 wherein said % DRA removal is about 20%
2 or more.

1 166. (New) The method of claim 128 wherein said % DRA removal is about 30%
2 or more.

1 167. (New) The method of claim 108 wherein said one or more effective DRA
2 removal agent comprises fresh attapulugus clay.

1 168. (New) The method of claim 167 wherein said fresh attapulugus clay comprises
2 granules, a majority of said granules having a mesh size of from about 30 to about 90.

1 169. (New) The method of claim 167 wherein said conditions comprise
2 incremental addition of the DRA removal agent(s) and agitation of the resulting mixture.

1 170. (New) The method of claim 167 wherein said conditions comprise passing
2 the contaminated jet fuel through a bed comprising said one or more effective DRA
3 removal agent(s).

1 171. (New) The method of claim 167 wherein said contacting produces used

2 DRA removal agent(s), said method further comprising replacing said used DRA removal
3 agent(s) with fresh DRA removal agent(s).

1 172. (New) The method of claim 167 further comprising preheating said one or
2 more removal agents prior to use under conditions effective to remove adsorbed water
3 without damaging the removal agent(s).

1 173. (New) The method of claim 167 wherein said drag reducer additive
2 comprises a polyalphaolefin having a peak molecular weight of about 1 million Daltons
3 or more.

1 174. (New) The method of claim 167 wherein said polyalphaolefin has a peak
2 molecular weight of about 10 million Daltons or more.

1 175. (New) The method of claim 167 wherein said DRA comprises two
2 different linear alpha olefins (LAO's) or more having from about 6 to about 12 carbon
3 atoms, the number of carbon atoms of the at least two different LAO's differing by 6.

1 176. (New) The method of claim 167 wherein said DRA comprises one or more
2 polyalphaolefins made by solution polymerization.

1 177. (New) The method of claim 167 wherein said DRA comprises polar
2 groups.

1 178. (New) The method of claim 167 wherein said DRA comprises organic
2 polar groups.

1 179. (New) The method of claim 167 wherein said polar groups comprise a
2 moiety selected from the group consisting of oxygen, sulfur, nitrogen, halogen,
3 phosphorus, unsaturated carbon-carbon bonds, and combinations thereof.

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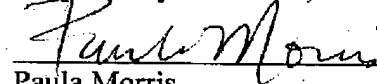
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1 180. (New) The method of claim 167 wherein said fresh attapulugus clay achieves a
2 % DRA removal of about 10% or more when 1 g of fresh attapulugus clay is added in
3 increments with agitation to 100 ml. of contaminated jet fuel comprising from about 8 to
4 about 12 ppm of unsheared target DRA.

1 181. (New) The method of claim 167 wherein said % DRA removal is about 20%
2 or more.

1 182. (New) The method of claim 167 wherein said % DRA removal is about 30%
2 or more.

Respectfully submitted,



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